VOLUME XIV NUMBER 8

THE ELEMENTARY SCHOOL TEACHER

APRIL 1914

EDUCATIONAL NEWS AND EDITORIAL COMMENT

The Department of Superintendence and Affiliated Meetings

The Department of Superintendence of the National Education Association together with its affiliated societies met in the city of Richmond, Virginia, during the week of February 23. The actual sessions of the Department of Superintendence began on Tuesday evening and continued until Friday noon. Some of the affiliated societies, such as the National Society for the Study of Education, began a day earlier. The Society of College Teachers of Education had a full day's session before the opening of the general meeting. The National Council also met the day before the Department.

Cultural and Industrial Education

The meetings were significant because of the large and representative group of school men and women in attendance, and also because of the character of material presented. Two or three of the discussions may be referred to in detail. The program on industrial education which was given on Thursday morning developed a sharp contrast between the views of Commissioner Snedden, of the state of Massachusetts, and Professor Bagley, of the University of Illinios. Commissioner Snedden represents, as does the state of Massachusetts, the general policy of separation between the industrial education to be given to workers and the general education to be given to those who are going forward to higher schools. Mr. Bagley's contention, on the other hand, was that there should be no separation; that those

who are going into the trades deserve a very large amount of cultural training, and those who take cultural training should in turn be given some insight into the practical activities of life.

The discussion of these contrasts is, of course, one of the vital problems of current education and the differences between the two points of view led to much discussion in lobbies as well as at the various meetings. There can be little doubt that it is the hope and expectation of the progressive school men and women of this country that some solution of the industrial problem will be found which shall operate to the advantage of the common schools and of the high schools, and not merely to the advantage of a separate industrial school; so that there shall ultimately be one democratic system of education in this country rather than a subdivision of a sort which shall separate any child from the possibilities of culture or from the possibilities of securing an insight in a practical way into the industries of the country.

The Committee on Standards

Another important meeting was that of the National Council, at which the Committee on Standards and Tests of Efficiency made its report. Last year this committee was continued only after a heated discussion in which the possibility of measuring efficiency was stoutly called in question by many of the conservative members of the Council. This year the committee presented a general statement regarding the nature of school surveys and the organization of these surveys. The statement of the chairman of the committee is to be issued by the Bureau of Education, so that it will be accessible to all who are interested in the general problem. The members of the committee then followed with brief statements of constructive programs of work through which it will be possible for the teachers to participate in general educational studies. Elsewhere in this issue of the *Elementary School Teacher* attention is given to one of the detailed programs of investigation.

It is to be hoped that this committee may now have an opportunity to work out through the co-operation of many school people its important problem of organizing a general survey of the educational community through its own activities. It is to be noted that the report made by Superintendent Blewett, of St. Louis, of

his own experiences on the Committee on Standards and Tests contributed very largely to the continuation of the committee and to the enthusiasm which was expressed for the work of the committee. Superintendent Blewett gave an account of his original skeptical attitude toward surveys and of the development in his own mind as he sat with the committee of an attitude more favorable to such educational research. At the end of the report of the committee the Council continued the committee and voted to recommend an appropriation to carry on its work. The time is past, it would seem from this discussion and from the general temper of the meeting of the Department of Superintendence, when anyone needs to be afraid of a school survey. Such a survey organized by school authorities and conducted in the interests of improved education is not unfriendly to the school system and is not uncertain or dangerous.

The General Education Board

A third session which developed much interesting material was that in which Mr. Buttrick and Mr. Flexner, of the General Education Board, made detailed reports of the activities of this foundation. This report is one of the first public reports that has been made by the General Education Board of its activities. All through the South the board has been co-operating in the development of various forms of practical activity in and outside of the school. The secondary schools of the South have been aided by the establishment of professorships in secondary education through the funds furnished by this board. Extension work has been organized in the form of corn clubs and tomato-canning clubs. The board promises to be an important factor in the development of the elementary and secondary schools of the country and it is interesting that the Department of Superintendence should receive from the leaders in this movement some account of the general expectations of the board and its general program of activities. This program of activities is avowedly not definitely formulated, but it is obvious that the General Education Board is interested in working out productive experiments of a type which shall enlarge the usefulness of the individual to the community. The program of socialized education was the program set forth by both of the speakers.

Other programs deserve discussion, but the limits of space and the freedom with which the Association distributes its publications make it inadvisable to attempt any general review of all the programs.

Significance of the Winter Meeting

Anyone who visits these meetings from year to year certainly is impressed with the representative character of the attendance. Superintendents come from all parts of the country. Many of them have their expenses paid by their boards, and the question is sometimes raised whether this is a paying investment. Even the casual observer can hardly fail to realize that the solidarity of American education is very largely promoted through the social intercourse that this meeting permits. In addition to the social advantages there are very obvious educational advantages. The growth of a scientific attitude toward educational inquiries and the wholesome attitude of interest in economy and efficiency are certainly fostered by these gatherings as they could not be if there were no annual gatherings of representatives of the teaching profession.

There was some discussion, from the floor, on one occasion, of the desirability of giving to the teachers who come to the summer meeting some of the results of the committee reports and discussions presented at the meetings of the Department of Superintendence. It is probably a mistake to assume that the summer meeting can distribute adequately the important results of these winter conferences. Much better would it be for these winter conferences to organize through their committees programs of work which can be carried out during the whole year and can be brought to a focus at the winter meetings. After subjecting themselves to criticism at the winter meetings these programs and the results derived from the actual experiments in the field can then be very much more adequately distributed, not through a single meeting, but through the publications of the Association which reach the hands of most of the teachers in all parts of the country. The winter meeting is a representative meeting. It is not an effort to bring together all the teachers, but rather it brings together all the interests under one roof and makes it possible for these representative school people to

carry back to their several systems some of the best and most critical results of education work.

It is hardly necessary to add the remark that southern hospitality was evident at the Richmond meeting on every hand. The Association was well entertained and the opportunities for interesting historical excursions which were offered to those in attendance were so numerous that they sometimes threatened to distract the members from the regular programs.

The next meeting, under the presidency of Superintendent Snyder, will be held in the city of Cincinnati, Ohio.

The Chicago School Situation

The school situation in the city of Chicago continues to attract public attention. The members of the Board of Education whose resignations were accepted by the mayor of the city some time ago succeeded in establishing their right through court proceedings to a reconsideration of their resignations. The court that gave first judgment on their plea ruled that their resignations were not valid. Legal complications may prevent these ousted trustees from regaining their seats, for if the matter cannot come up very soon, their terms of office will expire automatically in June. The autumn session of the court where the cases would then be heard will come too late to give the ousted members any actual advantage from the ruling of the lower court.

It is interesting to note, however, that the lower court took definitely the position that a resignation placed in the hands of the mayor is not good law and not good policy. The school board would become, if such resignations were valid, a mere political tool and could not exercise properly the functions vested in it.

In the meantime the course of events within the Board of Education itself is turbid. The budget of the superintendent is held up for the time being and was subjected to an examination by the Bureau of Efficiency. The course of study is also held up for a time on the ground that it is not adequate and that it contains "fads." This led to an acrimonious discussion of what constitutes a "fad" in a course of study. The superintendent indicated that

the course of study had been organized through the joint efforts of principals and teachers and not through any special activities of her own office.

Again one can only repeat the comments that school people are making everywhere in the country. If a superintendent cannot formulate the course of study with the co-operation of the educational staff and be sure that it will not be subjected to rejection or tinkering by the board of education, there is radical need of revision of relations within the school system.

One wonders how it would be possible for a superintendent to avoid this kind of clash. A vague and somewhat general answer is that it is the business of the superintendent to educate a community as well as to educate the children in the schools. The problem of educating a great community like the city of Chicago is no small undertaking. There undoubtedly ought to be in every superintendent's office additional machinery above and beyond what now exists—machinery that will collect information about the course of study and have it in such form that the public can be made aware instantly of the actual changes which are proposed in any new scheme of recitations submitted to the board. At the present moment the ordinary layman in the city of Chicago is wholly unable to decide from his own personal knowledge whether the Board of Education or the superintendent is in the right. Would it not be well to expend a part of the school money in presenting to the citizens of a great municipality the actual content of the present course of study and the significance of every change made? Certainly with the large innovations which are constantly being made in any living course of study such an exhibition of the actual content of the course would be a matter of large public interest.

Again, the holding-up of the salary budget indicates a very vital interest of the modern school community. The contention was set forth that this budget was not scientifically made. Probably the charge was only partially true. In all probabilities the superintendent would have been refused the necessary clerical force if she had asked for an opportunity to present a truly scientific budget of salaries. Now is the time, however, to make clear the

fact that such clerical and expert assistance is indispensable. It ought to be possible from this time on to forestall actual controversy by an intelligent development in the Chicago school system of agencies which shall continually submit expenditures to careful scientific scrutiny. There ought to be no board of education without its financial experts, and those financial experts ought to be in a position to answer instantly any question with regard to finances. This means, of course an enlargement of the administrative offices of the schools, but the kind of enlargement of administrative offices here demanded is the kind which every great corporation has come to recognize as necessary and legitimate.

The present situation in Chicago certainly cannot long continue. Whatever the outcome in detail, it is to be hoped that this deplorable controversy will lead to the creation of agencies competent to answer definitely and scientifically all the questions raised. If, then, these questions are mere evasions of the real situation and if they are efforts to antagonize and blockade the machinery of public education in this city, they would soon be set aside through the force of information actually in the hands of the school administration. If they are sincere questions expressing public opinion, they ought to be fully answered.

The National Association of Audubon Societies makes the following announcement, to which we are very glad to give currency:

Bird Pictures for Distribution

Any teacher or other person who will interest not less than ten children in contributing a fee of ten cents each to become junior members and will send this to the office of the National Association, will receive for each child ten of the best colored pictures of wild birds which have ever been published in this country. With each one of these ten pictures goes an outline drawing intended to be used by the child for filling in the proper colors with crayons. Each picture is also accompanied by a four-page leaflet discussing the habits and general activities of the bird treated. Every child also receives an Audubon button. The cost of publishing and mailing this material is a little more than twice as much as the child's fee.

The teacher who forms such a class receives without cost to herself one full year's subscription to the beautiful illustrated magazine *Bird-Lore*. This is the leading publication in the world on bird study. To the teacher also there is sent other free literature containing many hints on methods of putting up bird boxes, feeding birds in winter, and descriptions of methods for attracting birds about the home or schoolhouse.

The Leipzig Book and Educational Exhibit

The city of Leipzig, in Germany, has long been famous as one of the great seats of the book trade of the world. This is the center of the organization known as the Book Exchange which makes it possible for the dealers in the remotest towns of Germany to be in direct contact with all the publishers who are turning out scientific and literary material. The city is preparing to hold, during the coming summer, a great exposition of books and school materials. The circular which has been sent out indicates that a variety of different interests will be represented in this exposition.

The first division will deal with drawing. Books, pamphlets, and actual school materials are being collected to show the development of the child's interest and ability to represent objects in space. This school exhibit will also be accompanied by historical books and collections that will show the development of art.

A second group of exhibitions will deal with the problem of writing. The stages of writing will be exhibited in a concrete way by examples of different kinds of penmanship. Furthermore, the problem will be taken up with reference to the psychology of the practice and the results that have been attained in the school.

A third group of exhibits will deal with singing and music. The high development of music in Germany has long been known to American students. The discussions of this kind of training in the school and the materials employed in carrying on the work will be presented.

The next division will make a study of language in a scientific way and will show the relation of the development of language to the various subjects of instruction.

The fifth group of exhibits will be made up of photographs. There will be photographs which show school work in its different aspects, others showing the buildings and material equipment of the schools. In addition the exhibits will aim to show how photography can be used, for example, in mathematical instruction and natural scientific instruction. How the subject of photography itself can be made a suitable subject for school training will also be shown.

The sixth group of exhibits will show what has been done in

child-study. The seventh group will give the books on school history and statistics, showing how the methods of scientific inquiry have been applied to school problems.

In short, there promises to be a very large exhibition of all the manifold applications of the printing and engraving art to the different aspects of school life. The material of instruction, the results of instruction, and the efforts that are being made to improve both the teachers and the children will find here an expression that ought to be of interest to visitors from across the water as well as to visitors who come from various parts of the German Empire.

A Shorter Elementary Course

In an interview which is published in the *Hartford Times* of February 28, Secretary Charles D. Hine, of the Connecticut State Board of Education, discusses the shorter elementary course which has been put into operation in the town of Wethersfield in the state of Connecticut. The schools of this town are organized under the direct supervision of the state board. The state appoints the superintendent, who has charge of the schools. In this town children who have been in the elementary school up to their twelfth year are now allowed to enter the high school. This innovation is commented upon at length by State Secretary Hine. He points out that there is a disposition on the part of some high-school authorities to oppose the admission of children before they are fourteen years of age. These high-school authorities contend that the age of twelve is one of too great immaturity; that the children cannot take up the work of the high school with proper experience behind them. On the other hand, Mr. Hine points out that the long elementary course, filled with a great variety of subjects that are badly organized, very frequently leads to a kind of mental dissipation which is not good for the child and is not a suitable preparation for the higher work of the secondary school.

Certainly there are many children who ought to be able to carry on the work of an ordinary high school when they are twelve years of age. The fact that this is being done in Wethersfield, that the children are securing, in spite of this more economical turn of education, the essentials of elementary-school training makes the

secretary of the Connecticut board optimistic in the belief that the practice will become very much more general and that shortly many other children will benefit by this abbreviation of the elementary course.

Languages in the Elementary Schools

The tendency appears in many quarters to undertake in the elementary school types of work included heretofore only in high-school programs. Certainly there is much to be said on the psychological side in favor of the introduction of languages into the schools at an earlier period than at the present time. The city of Portland, Oregon, has recently undertaken a number of radical changes in its school organization. The commission which investigated these schools recommended certain changes and these changes are going forward rapidly. One of the changes which is to be made in an experimental way is described in the following article:

Within the next few days an absolute innovation in the curricula of the public schools of the city will have its inauguration—that of teaching languages in the grade schools. Experimental classes will be started in the Irvington, Ainsworth, and Ladd schools in Latin and German. Teachers of English who are qualified to teach these two languages will assume these duties in addition to their regular work.

The plan has been broached to the pupils themselves and they have unanimously expressed a wish to join the classes, and under the direction of Professor A. P. McKinley language teaching in the grades will soon form a part of the regular grammar-school work.

In these introductory classes, however, it is hoped to work out and to solve many of the problems that will face the teaching of languages to younger students and also to try out textbooks. The plan is expected to prove a success because grade-school children are of the age that learns readily and assimilates easily. With the ground work of language received in the grades the pupils will pass on to high school able to take up moderately advanced work and later go to college with language requirements largely satisfied, thereby allowing more time for other studies.

"We hope at some future date to add French and Spanish to the list of languages," said the teacher in charge. "Spanish will be most important because the Panama Canal will increase our trade relations with Central and South America and Spanish will prove exceedingly useful to the business man of the Pacific Coast.

"We Americans are behind Europeans in learning foreign languages and starting the study in the grades will stimulate interest in them. It will also make language work easier in the high schools and colleges.

"We hope to start a normal class for training teachers in the teaching of languages. For the present we shall teach the language in 25-minute halves of the regular 50-minute period, each half of the class studying and reciting in turn."

READING TESTS

CHARLES H. JUDD
University of Chicago

The Committee on Standards and Tests of the National Council of Education has authorized its individual members to seek the co-operation of school officers in different parts of the country in collecting materials. This paper was prepared with a view to securing such co-operation in testing reading. The author of the paper invites correspondence from anyone who will undertake this type of work. Fortunately Mr. Courtis' paper which follows this came to hand in time to appear in the same issue. Mr. Courtis has followed a somewhat different method from that here suggested. The author of this paper wishes to lend all support possible to Mr. Courtis. If school officers can carry out the work more easily by that method, the results will be quite as useful to the Committee on Standards. The chief purpose of both papers is to get work along this line started at many centers.

Many teachers are prejudiced against the measurement of school work because they assume that such measurement means the imposition of arbitrary outside standards on their pupils. They assume that someone believes that he has a definite yardstick by which he can determine the efficiency of all the children in the United States in their reading or arithmetic. Such prejudices would disappear entirely if the distinction between social standards and physical standards of measurement were clearly apprehended.

The fact is that every teacher is employing standards in judging the efficiency of various children in his or her class. If a given boy in the fourth grade reads poorly as compared with the other members of the class, if he shows no ability to understand the passage which the other members of the class easily understand, the teacher grades this boy as inefficient in the work of the class. In this case the boy has been measured by comparison with other members of his own class. The standard to which he has been subjected is a social standard. It is not held by his teacher that he ought to have the mental ability of an older boy, and the teacher would not be satisfied with this fourth-grade boy on the ground that he shows great efficiency in reading the primer used by the first grade. In other words, the boy must prove himself to be like

the other members of the group with which he is associated. If he can do this he is judged to be efficient; if he cannot he is judged to be in some sense deficient.

The kind of comparison which the teacher is able to make within the limits of her own class ought to be extended in such a way that the class as a whole may be compared to larger units of school organization. That is, the efficiency of a fourth-grade class can be determined by comparing it with classes above and below, exactly as the efficiency of a single boy can be determined by comparing him with the other members of his class; or a fourth grade in one school building can be compared with similar grades in other school buildings, or other school systems. This comparing of one class with another is also a common fact in school experience. A certain boy comes to a given school, transferred from a neighboring school. We have no hesitation whatever in condemning the school from which he comes if this product of the school does not succeed in taking his place with the class which he enters. In other words, we judge schools by their products, and we formulate our judgment in detail by comparing one product with another product. In the same way the students who come to a given high school from several neighboring elementary schools are all compared with each other and judgments are formed by the high-school teacher regarding the efficiency or deficiency of the various elementary schools which contribute their students to the high school. Here again standards are social standards rather than absolute standards.

Even when the child's ability is measured by what seems to be an absolute standard, as by his actual solving of certain problems which are set for him, there are certain variable characteristics of the standard which must be taken into consideration. Thus the difficulty of solving the problems chosen is an important consideration in any case. If, for example, the ten problems set are very easy, the child who fails in one of these problems is not as efficient as the child who fails in several problems of a difficult set. In other words, the level at which the work is done becomes a matter of importance, and the level which is expected is determined by comparison, not by some absolute measure. Other considerations are, of course, of equal importance. How long were the

children allowed to work on the problems? Was their preparation immediately before the test directed toward this particular examination or was it general in character? In other words, though a test seems at the outset to be an absolute test of the child's ability, it turns out on analysis to contain many elements which differ with the social setting in which the pupil works, and the absolute character of the standard is seen to be a mere fiction. The standard is in reality a social standard and its value depends upon comparison with other school situations and with other groups of individuals who are undertaking similar work.

With this definition of the meaning of standards in mind, let us consider some of the comparative problems which are of importance in the teaching of reading in the elementary school. In the first place, it is obvious that a comparison of different grades in the same school system is a matter of great importance. If the child shows adequate progress as he passes from the second to the third grade, from the third to the fourth grade, and so on, we may be satisfied that the school is doing efficient work even if the ability to read at any given point is in the absolute not great. Or, to put the matter in another way, the grade which is steadily improving shows a higher degree of efficiency than a grade which is improving less rapidly, even though the grade which is improving less rapidly shows a fair degree of ability. In preparing our test, therefore, we should aim to determine the rate of improvement during the different grades.

Second, there are two fundamentally different types of reading. There is reading which is oral and reading which is silent. If one notes the sharp contrast between little children and adults, he finds that oral reading is the common mode of reading among little children and the very exceptional form of reading in adult life. The ordinary adult finds it so much more convenient and easy to read to himself that he does not read aloud except under the most unusual circumstances. This distinction between oral and silent reading is not one which has been clearly recognized in school work. School work has for the most part dealt with oral reading. A comparison of the two types of reading will soon convince even the casual observer that oral reading is a rather slow and inconvenient

form of reading as compared with silent reading. Furthermore, oral reading does not exhibit the highest training given in the schools, therefore a comparison of oral and silent reading will help in making a systematic comparison of the mental development of children at different stages of school work.

Third, reading is after all merely a secondary form of activity. What we want primarily in the reading class is ability to understand the passages which are read. In the lower grades the mastery of words is itself so difficult a problem that the child is able only very slowly to take in information from the passage which he reads. In the upper grades, on the other hand, the comprehension of the passage is so fully developed that the chief value of reading in these later grades is the information which it gives. Little or no time is required in the upper grades for the formal process of pronouncing words or mastering sentence forms. The mechanics of reading, if we may use that phrase to distinguish the process of reading from the process of understanding, are mastered and the whole attention may now be concentrated on the significance of the passage. We have here an important contrast between pupils in different stages of advancement. If the little child expends most of his mental energy in reading the sentence and the older child expends most of his mental energy in getting the significance of the passage, we may, therefore, test the various children in different grades by inquiring into their ability to get the meaning of the passages which they read. We shall have to choose passages with different kinds of ideas and with different degrees of complexity; simple ideas and ideas which are easy to formulate will be given in the lower grades; more complex and difficult ideas in the upper grades. It would indeed be possible in some cases to use exactly the same passage all through the school for the purpose of finding out how the ability to get at the meaning progresses at different stages in education, but it will usually be found to be more practical to arrange an overlapping series of tests so that comparisons between the extremes may be made indirectly through intermediate tests which are applied only to smaller units of the school population. For example, we may make a comparison of the first three grades with each other. Then compare the third,

fourth, and fifth grades with each other, and finally the fifth, sixth, and seventh grades. The overlapping of the third and fifth grades, each appearing in two groups, will make it possible to get an idea of the relative ability of the first and eighth grades, or any other two grades in the series.

Another type of variation in the reading matter to be used is suggested by a consideration of the changing interests of children. There is a period in the intermediate grades when children exhibit a marked interest in the things in the physical world about them as contrasted with the people who go to make up the social world. Later in the adolescent period the social interests are renewed, and there is a marked interest in romantic or social literature. By testing the ability of children to get the meaning of different kinds of reading matter we gain some insight into the kinds of reading matter best suited to different stages of development. Children at one stage will get the meaning of one kind of reading matter most easily, while children at another stage of development will take up readily a totally different type of matter.

It would undoubtedly be advantageous in the interests of direct comparison if tests could be made all over the United States with the same material, that is, if the same passage could be presented to every third grade in the United States and the results carefully tabulated. We should then have a very illuminating study of the whole American school system. The disadvantage with such an effort at absolute uniformity is that while the passage itself might be the same, it would undoubtedly relate itself to the preparation of the different third grades in very different ways. It is conceivable that a third grade otherwise relatively inefficient would have just the preparation in words and ideas that would make it possible for that particular third grade to stand well in the test on the passage selected. Conceivably a third grade which had had an entirely different type of training might show very little ability with the particular passage chosen. We shall accordingly lose little by foregoing the use of a single passage. Each school system may select its own material, provided only the material is thoroughly analyzed and the results accompanied in every case by a statement of the material thus employed. After a number of tests of

this sort within single school systems have been carried out, we shall perhaps be prepared to undertake a more systematic and unified test of many school systems.

The first step in making tests is to select some simple phase of the reading process which can be clearly described and definitely determined. One such phase which offers itself as the simplest characteristic of most mental processes is the rate of speed. The rate at which a child reads is a very useful indication of efficiency. One has only to observe little children who are just learning to read to be impressed with the slowness of their mental operation. On the other hand, the fluent reading of an upper-grade child is a sign of his mastery of the mechanical side of the process. Furthermore, this test of rate will bring out very effectively the contrast between silent reading and oral reading. In the lower grades silent reading is a very slow, if not indeed an impossible, process. In the upper grades silent reading is a very rapid form of reading, much more rapid indeed than any form of oral reading. With the adult, oral reading is from two to three times as slow as silent reading.

With these suggestions regarding rate and the general character of comparative tests in mind, let a test in silent reading be carried out as follows. The teacher selects a passage to be read. She reads it silently herself and notes the time which it requires. It will be in the interests of later comparison if a group of teachers will select the same passage and all test first their own rate of silent reading. After selecting a suitable passage each child to be tested is supplied with a copy. The passage should of course be new to the child. He is told before he looks at the passage that he is to read it, getting as much of its meaning as he can, because he will be asked to tell on paper what is in the passage. At a given signal the reading begins. After three minutes, or whatever period the teacher's own test shows to be well within the time required to read the passage, a signal is given and the children mark how far they have gone and at once set about writing down all that they remember. They should be allowed as much time as they need for this part of the exercise. Sometimes, instead of asking the children to write down what they can recall, a series of questions may be

given which will bring out definitely the ability of the child to recall certain particular ideas.

Such a test as this should be made repeatedly and a continuous record should be kept for each child. A test is of little value if given as a single examination. It is of great value if it is used as a common routine of instruction.

Different kinds of reading matter should be used and different degrees of difficulty should be sought in the different passages.

The making and tabulating of the record does not involve as much labor as might be anticipated by one not acquainted with experimental methods. If each child indicates how far he has gone, the number of lines can readily be recorded. It is better in the interests of future comparisons for the teacher to reduce the record to number of words read, because lines are so different in different books. This reducing of the pupil's report in lines to number of words requires only a single counting. A check for the number of lines read is, of course, supplied by the number of ideas reproduced.

In order to measure a child's efficiency in getting meaning the passage should first be analyzed into ideas presented. The following is a passage thus analyzed by Professor Freeman for such a test. With this analysis the child's report can easily be rated. He has so and so many of the ideas presented in the original passage; or, as suggested above, suitable questions can be made up to draw out the ideas.

A BOY'S PET

In our town, | when a boy had a coon, | he had to have a box turned open side down | to keep it in, | and he had to have a little door in the box | to pull the coon out through | whenever he wanted to show it to other boys | or look at it himself, | which was forty or fifty times a day | when he first got it. |

He had to have a collar for the coon, | and a chain, | because a coon could gnaw through a string | in a minute.

The coon liked to stay inside his box, | where he had a bed of hay, | and whenever the boy pulled him out, | he did his best to bite the boy. | He knew no tricks; | his temper was bad; | he wouldn't even let a fellow see him eat, | and there was nothing about him, except the rings round his tail, that anybody would care for.

My boys' brother had a coon | that got away two or three times. | He ran up the tall locust tree | in front of the house, | and in a few minutes all the boys of the town would be there | telling his owner how to get him down.

Of course the only way was to climb for the coon, | which would be out at the point of a high and slender limb, | and would bite you awfully, | even if the limb didn't break under you; | while the boys kept yelling to you what to do, | and the dog just howled with excitement.

The last time the coon got away | he was discovered by moonlight | in the locust tree. | His owner climbed for him, | but the coon kept going higher and higher, | and at last he had to be left till morning. | In the morning he was not there, | or anywhere.

The test of oral reading is more difficult to conduct as a part of the regular work of the school. Individual oral reading tests are relatively easy and may be carried out like the silent test above described.

A teacher can, however, train herself to carry on the oral test in connection with the regular lesson. The teacher should call upon successive members of the class to read orally and should indicate the length of time that is consumed in the reading of each passage. A little training in noting the time of such reading will make it possible to check up a whole class very rapidly. The work will be much more efficiently done if one can use a stop watch, but, without this added convenience, illuminating information can be secured with regard to the rate of oral reading as contrasted with the rate of silent reading by noting the number of seconds required for each passage and the number of words in the passage.

It is not easy to determine the value of oral reading as a means of getting ideas when the work is done in class, for the simple reason that while one child is reading orally, the rest are either supplementing the test by reading silently or are neglecting the class exercise while the slow process of oral reading is going on. One way of avoiding this difficulty and of making at the same time a very interesting test of ability to understand matters heard rather than seen is to pass the single copy of the text from pupil to pupil allowing only the one who is reading to see the text and requiring all to reproduce the ideas. The pupil who reads the passage will of course be in an entirely different relation to the passage from those who hear. With reference to the different passages the various children will be successively readers and listeners.

The only satisfactory way of getting a test of the ability to understand meanings through oral reading is through individual

tests. If a teacher will test two or three pupils daily, however, the burden of such a test will not be great and a tabulated result will be of great value in checking up the other types of results which have already been discussed.

Further utilization of this test would be possible by allowing the children to read the same passage several times. Some very illuminating tests have been made of the ability to recognize simple geometrical figures after successive attempts, and so undoubtedly with the reading of passages it would be possible to get in the second or third reading great improvement over the first reading. The test would thus grow naturally into an examination of the way in which children assimilate ideas. For example, in studying the lesson in geography or history silently at his seat, the boy undoubtedly reads over certain passages several times. In some cases he reads over selected passages which offer especial difficulty, in other cases he reads over the whole lesson several times in succession. We ought to be able to determine which of these two methods of study is the more economical so that we may help children in their silent reading.

Mr. Courtis has shown in his tests the importance of the child's rate of writing as an element in any test which calls upon the child to reproduce ideas that he has acquired through reading. The child who writes slowly is disadvantaged in comparison with the child who writes rapidly, so that our definition of a child's ability to reproduce ideas should undoubtedly include ultimately his ability to write. The difficulty which is here encountered can be overcome so far as individual tests are concerned by allowing children to reproduce orally the ideas acquired. The teacher has now to note those ideas which are correctly reproduced and those which are omitted. Part of the difficulty can also be eliminated by giving the writer plenty of time. Even if he has plenty of time, however, the rate of writing will enter into the situation, because the child who writes slowly and laboriously will be distracted by the mere process of writing and his recollection of ideas will be in a measure distracted by this mere process of setting down on paper what he has recalled.

STANDARD TESTS IN ENGLISH

S. A. COURTIS
Liggett School, Detroit, Michigan

Standard tests in education are rulers for the measurement of educational products; tools for research work. They should be differentiated from the ordinary examinations on the one hand and the more rigid and formal measurements of the experimental psychologists on the other. An examination, for instance, is supposed to show whether or not the individual has successfully completed a prescribed course of work. Examinations are complex, are usually made afresh each time they are given, and only in the most general sense may the conditions under which they are given said to be controlled.

The tests of the psychologists are "pure science" tests. The test itself often deals with a single elemental phase of mental action, and the conditions under which the test is given are rigidly controlled. For this reason the learning of nonsense syllables, crossing out of *A*'s, and other tests of this character, while of value from the point of view of scientific study of the mind, have little connection with actual classroom work.

Day by day, however, the school is attempting to make certain well-defined changes in the minds and habits of the children in its care. The character and the amount of these changes is not determined by chance, but in accordance with laws which, in their operation, are as constant as those which determine other phenomena of the natural world. Until these laws are known, scientific control of the efficiency of the educational process will be impossible. The greatest need of the educational world today, from the point of improvement of the efficiency of teaching, is scientific yet *practical* measures of the fundamental abilities actually being developed by school work. For it is the possession of such measures that makes possible the study of the development of these abilities from grade to grade and the evaluation of the effects of varying conditions in method.

In the writer's thinking, the functions of standard educational tests are four: (*a*) to secure information that will enable school authorities to formulate in objective terms the ends to be attained in any educational process; (*b*) to measure the efficiency of methods designed to produce the desired results; (*c*) to determine the factors and laws which condition learning and teaching; (*d*) to furnish data that will enable comparisons of school with school, and teacher with teacher for purposes of supervisory control to be made upon *scientific, impersonal, objective* bases.

If the reader will keep these purposes in mind during the discussions of the tests described below, he will not be led into making unwarranted criticisms. For the tests are neither examinations, classroom exercises, nor measures of elementary psychological activities.

As the readers of this journal know, the writer has for some years been measuring the efficiency of teaching in arithmetic. The development of the abilities involved in work with whole numbers in the four processes has at last been brought under control; but little success has been achieved in the control of the reasoning processes. Recent experimental studies have seemed to show that the chief difficulties are closely connected with the abilities involved in reading. It has become imperative, therefore, to determine standard rates of reading and of comprehension; but in giving tests for this purpose it was found that the material secured could be scored in so many other ways of value that the group of tests has been combined into a single series under the head of "English Tests." These have been issued on the same co-operative basis followed in the arithmetic work, and are now being standardized by teachers and superintendents in different parts of the country. Definite standards cannot be formulated for some time, but it was thought that a summary of the results obtained from a single school would furnish a concrete illustration of the products of such tests and lead to a more widespread interest and a greater degree of co-operation in the work of standardization.

The tests are six in number and have been named as follows: Test 1, "Handwriting"; Test 2, "Dictation"; Test 3, "Original Story"; Test 4, "Normal Reading"; Test 5, "Careful Reading";

Test 6, "Reproduction." They are not distinct tests, but a series of related exercises grouped about a central theme.

The test sheets are printed on paper of a uniform size and bound with appropriate record sheets in pamphlet form. Exactly the same tests are given to all grades from the fourth through high school and university, and that conditions may be kept uniform, instructions for giving, scoring, and tabulating the tests have been printed in convenient form together with necessary record sheets, answer cards, and graph sheets. The tests themselves contain many devices tending to make scoring easy and to reduce the time required to a minimum. They will be supplied at cost to those who will return their results for tabulation with those of other schools. Any teacher of English, even though without previous training in educational measurement, may, at nominal cost, take part in the co-operative investigation with benefit to himself.

The series of tests is based upon the picture of a child, startled by the appearance of a hungry dog while sitting in a doorway drinking from a bowl of milk. The dictation exercises (Test 2) give the first part of a story (Part A) based upon the picture, but the story is interrupted at a critical point and in the third test the child is required to finish the story for himself. When this has been done a printed continuation of the story (Part B) is given him to read at his normal rate. This is followed by a test of verbal memory of what has been read. In the fifth test, the printed continuation of the story (Part C) is also given him to read, but this time he is cautioned that he must read so carefully that he can reproduce what he has read. The reproduction of this part of the story immediately follows. The concluding portion of the story (Part D) is then *read to* him and again the child is asked to reproduce the subject-matter. Test 1, which occurs on the last page, is called a test in handwriting, but needs considerable explanation. A portion of the test is shown in Fig. 1. It will be noted that the activity in the test is that of copying letters arranged in nonsense groups of five letters each. The actual letters used are those which occur in the dictation exercises, Test 2, and the frequency of occurrence of each letter is the same as in that test. As far as handwriting is concerned, the situation closely resembles that of the

formal writing-lesson in which a copy is used. For this reason, this test has the *least* value of any for purposes of measuring handwriting. It does measure, however, very effectively, the rate of motor activity of the child, and his response to a strange situation involving no thought-content. It serves the further purpose of disposing of the question of handwriting. In this test, if anywhere, the child affects the mannerisms and style of the handwriting instruction, but, *having been tested in handwriting*, he writes

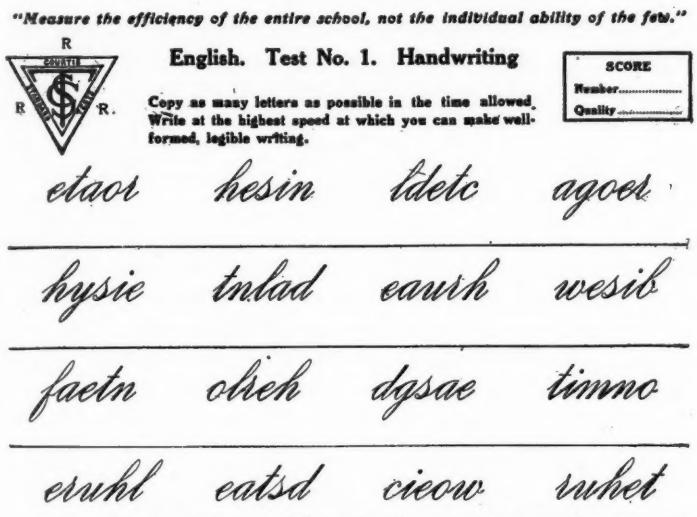
"Measure the efficiency of the entire school, not the individual ability of the few."
R
R
R
English. Test No. 1. Handwriting
Copy as many letters as possible in the time allowed. Write at the highest speed at which you can make well-formed, legible writing.
SCORE
Number.....
Quality.....
etaoi hesin tdetc agoes
hysie tnlad eauih wesib
faetn oheh dgsae timmo
eruhl eatsd cieow ruhet

FIG. 1.—Portion of Test 1. This test is called a test of handwriting, but really measures rate of motor activity.

normally and naturally in the tests which follow. In other words, comparison of the quality of handwriting in Test 1 with the average score made in Tests 3, 5, and 6 reveals any lack that there may be of transfer of the abilities generated by the handwriting lesson to the handwriting of a child when serving its normal function, that of recording thought.

The tests are scored as to quality and legibility of handwriting by the Thorndike or Ayres scales, as to number of words read or written per minute, as to the quality of the original story and of

the reproductions written, following the methods adopted by Rice, Bliss, and others, as to mistakes per hundred words written in punctuation, spelling, and syntax, as to the rate and accuracy of memory of both words and sense.

The details of the scoring and of the provisions taken to insure uniformity are too many to be given here. Two of these, however, need special comment. The question is often asked, why the Hillegas scale for measurement of English composition is not used. The answers are two in number. For one thing, the writer has not found the Hillegas scale a practical tool for classroom use. In the hands of a person of sufficient training, it affords a valuable objective basis of comparison of one type of composition with another. For instance, in comparing the products of future editions of the Courtis English tests with the present edition, the values of the standards in English composition would be equated by means of the Hillegas scale, but for measurements of school efficiency in teaching English composition it seems to the writer more practical to attempt to devise a scale, all the samples of which shall have a uniform subject-matter. This the products of the present series of tests will yield, and the construction of such a scale is one of the underlying reasons why the tests are issued in the present form. The second answer must be that the purpose of the tests is not so much to measure the abilities of the children in English composition as it is to determine the variation in judgment of teachers in various parts of the country, and the factors entering into such judgment. If as a result of giving these tests a thousand sample papers are secured all of which, in the judgment of the teachers scoring them, are "Excellent," and if these are compared with other groups of one thousand papers each, scored by the teachers "Good," "Fair," "Poor," "Failure," respectively, all on material uniform in content and obtained under uniform conditions, it will be possible to determine with great exactness what weight should be given to mistakes in spelling, writing, style, etc., in determining the grade of a paper. This would reduce the formulation of standards in English composition to a scientific objective basis. For this reason the teachers are asked to score the papers as to English composition according to *their own standards.*

A second point that needs discussion is the measure of spelling, punctuation, and syntax. The tests are in no sense spelling-tests, for instance, but they do measure spelling-efficiency. For if in one school under certain conditions 10 per cent of the eighth-grade children are able to write 100 words without making a single mistake, while in another school, under precisely the same conditions and on the same subject-matter, 53 per cent of the children in the eighth grade are able to write 100 words without a single error, it is evident that the efficiency of the instruction in spelling, other things being equal, is much greater in the second school than in the first. Tabulations of the returns from many schools will, therefore, yield standards of efficiency in spelling, punctuation, and syntax.

As a concrete illustration of the types of results secured from these tests, in Fig. 2 are given the scores made by an adult. This man, a supervisor in arithmetic in a school system in Michigan, was able to make a better score in the formal handwriting than he did in the later tests. The average quality in his handwriting by the Thorndike scale was judged to be that of sample 9, and his legibility equal to that of sample 50 on the Ayres scale. In the simple copying of groups of letters the individual wrote at the rate of 30 words per minute. In reproducing material which he had just read or which had been read to him, he wrote at the rate of 25 words per minute, but in the original story his rate fell to 19 words per minute. This fall in score is significant as revealing a difficulty which this person experienced, either in creating the ideas to write, or in putting into proper form the story he wished to express. His normal rate of reading was high—378 words per minute—but when reading with care for reproduction his rate was but 128 words per minute. The quality of his original story was "Good," as judged by the standards of the teacher who scored the paper, but his reproductions were only "Fair." He made on the average of two mistakes in punctuation per hundred words written, and none in spelling and syntax. His verbal memory is poor as shown by the very low rate of three words per minute in Test 4 and by the low accuracy of his results. This fact is again brought out in Tests 5 and 6. Here his rate is higher but his

"Measure the efficiency of the entire school, not the individual ability of the few."

R COURTIS R R

COURTIS STANDARD TESTS
IN
Reading, Writing and Arithmetic

ENGLISH
Series C

INDIVIDUAL SCORE SHEET.

Name Henry, Age last birthday 35
BOY OR GIRL

School ..... Grade ..... Room .....

City ..... State ..... Date .....

Tests	HANDWRITING QUALITY—THORNDIKE Trials 1st	2nd	Change	HANDWRITING LEGIBILITY—AYERS Trials 1st	2nd	Change	RATE WORDS PER MINUTE Trials 1st	2nd	Change	COMPOSITION GRADE Trials 1st	2nd	Change
1	10			50			30					
2	10			50			22					
*3	9			50			19			B		
4							378					
*5	9			50			12.8 25			C		
*6	9			50			28			C		
*Av.	9			50								

Tests	MISTAKES PER HUNDRED WORDS WRITTEN PUNCTUATION Trial 1st	2nd	Change	SPELLING Trial 1st	2nd	Change	SYNTAX Trial 1st	2nd	Change
2	2			0			0		
3	1			0			0		
5	3			0			0		
6	2			0			0		
Av.	2								

Tests	MEMORY RATE Trial 1st	2nd	Change	ACCURACY Trial 1st	2nd	Change
				WORDS		
4	3			32		
*5	8			21		
*6	12			20		
*Av.	10			20		
				POINTS		
5	2.2			88		
6	3.1			73		
Av.	2.6			80		

COPYRIGHTED 1919 BY S. A. COURTIS, 68 ELIOT STREET DETROIT, MICH.
ALL RIGHTS RESERVED

FIG. 2.—A sample record showing scores made by an adult.

accuracy correspondingly lower. It is to be noted that he responds more readily to auditory stimulus than he does to visual. In spite of his poor verbal memory, however, his comprehension of what was read to him is high. He was able to reproduce 75 per cent of the essential subject-matter of the two passages, after a single reading.

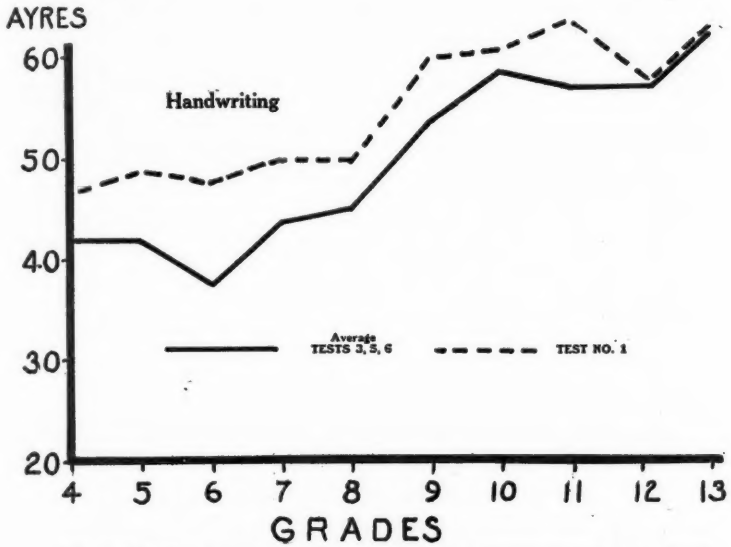

FIG. 3.—Median scores by grades in handwriting. Papers scored by the Ayres' scale. Solid line, average of median scores, Tests 3, 5, and 6. Dotted line, median score, Test 1, formal handwriting. The difference between the two curves was caused by the attempt to make good copy in the formal test.

It will be evident at once that the tests measure a number of very simple yet fundamental aspects of the ordinary products of school instruction in various phases of English work. The essential element in the interpretation of such scores, however, is standards based upon a sufficient number of cases for each grade to afford reasonable norms. These are, of course, entirely wanting at the present time, but in the graphs which follow, the results from the measurements of a single school are given. It should be particularly noted that the conditions of examination were kept

uniform from the fourth grade through the high school (five-year course, hence grade 13) and that the scoring was done by one person in a uniform manner.

In Fig. 3 are given the median scores by grades in handwriting. It will be seen that the curve declines at the sixth grade, then rises to a maximum of 62 on the Ayres scale. This marks the efficiency of the handwriting instruction in this school as low, a fact which the school authorities had already recognized. The superiority

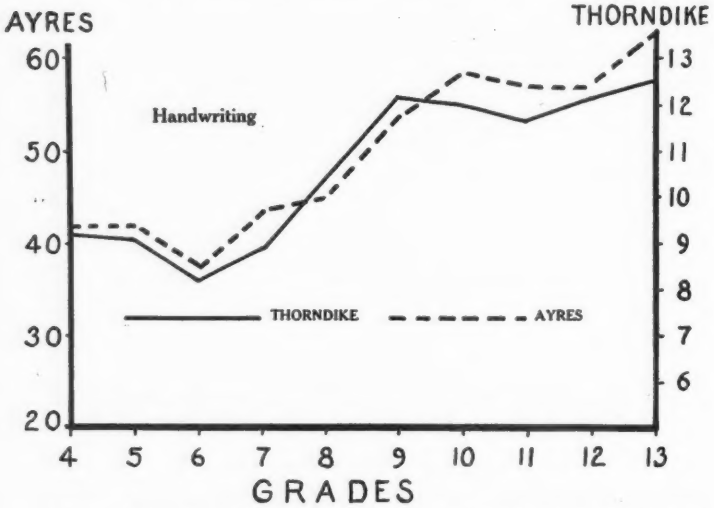

FIG. 4.—Comparison of the Development Curves for Handwriting as Determined by the Ayres and by the Thorndike scales.

of grades four and five over six indicates the effect of recent changes in the course of study with definite provision for handwriting instruction in place of the incidental training of previous years. The differences between the curves for Test 1 and the average of Tests 3, 5, and 6, differences which are fairly constant in grades 4, 5, 6, 7, and 8, indicate a lack of transfer of ability in these grades; in other words, the effort to produce good copy in a handwriting test leads to a better handwriting product than that which is obtained when the children are writing naturally. This should

serve to emphasize the need of *careful control of the conditions under which specimens are secured* in any measurement of efficiency of handwriting instruction.

In Fig. 4 are given for comparison the development curves for handwriting in this school, as measured by the Ayres and by the Thorndike scales. Except for grades 8 and 9, the differences in the two curves are slight. The fact that consistent *relative* results

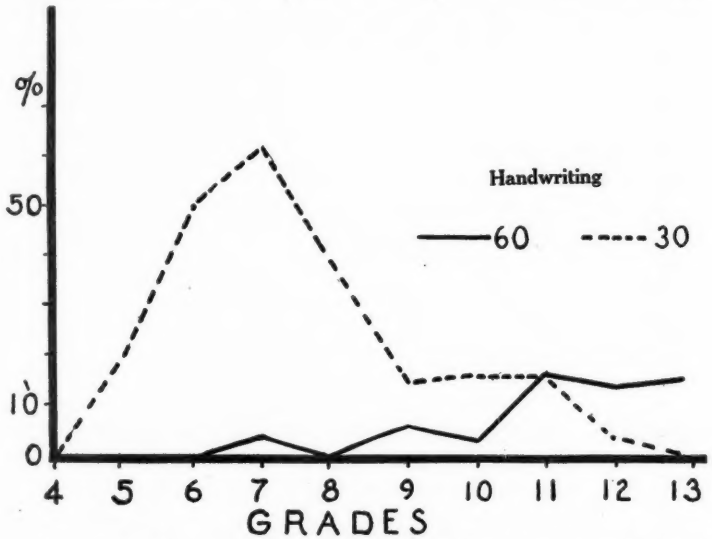

FIG. 5.—Efficiency curves for handwriting. Solid line shows the percentage of the membership of each grade that equals or exceeds sample 60 on the Ayres scale.

may be secured when samples of handwriting are measured by two different scales at different times is proof to the writer that objective measurement of handwriting rests upon no uncertain basis.

From the point of view of efficiency of instruction, however, median scores should be replaced by the percentage of the class membership that reach or exceed the desired standard. In Fig. 5 the heavy line shows the percentage of each grade's membership which equals or exceeds sample 60 on the Ayres scale. As noted before, the efficiency of the handwriting instruction in this school

is very low, but at least the school now has an objective basis of comparison of present results with those which will have been reached when the present fourth-grade class shall have become Seniors. It will be remembered that a comparison of a school with itself or comparisons of methods from school to school was one of the fundamental purposes of such standard tests. In similar fashion the dotted line in Fig. 5 shows at once the percentage of each class membership whose writing equals or falls below

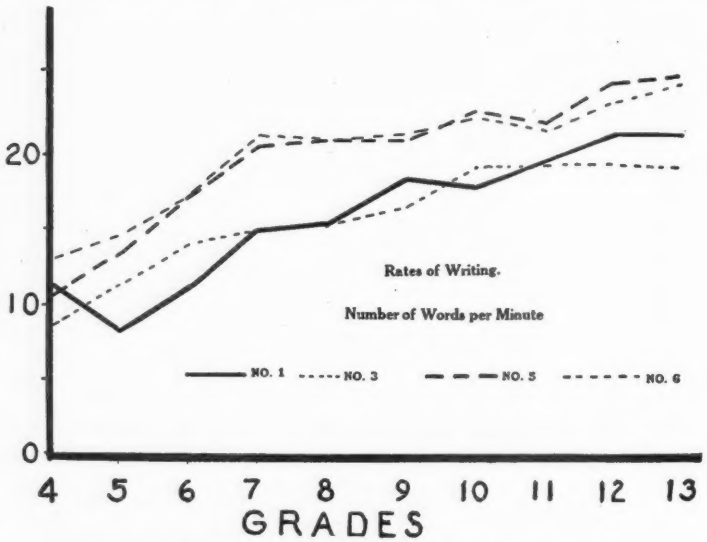

FIG. 6.—Development curves for rates of writing in Tests 1, 3, 5, 6.

sample 30 on the Ayres scale. Grades 5, 6, 7, and 8 are thus seen to have the greatest need for improvement.

In Fig. 6 are given the development curves for rate of writing, the number of words written per minute in Tests 1, 3, 5, and 6. It should be noted that curves for Tests 1 and 3 closely agree, as do those of Tests 5 and 6, but that the second set are considerably higher than the first. This means that slowing-down of speed of writing in Test 1 in the effort to produce good copy was about equal to the effect of the effort put forth in composing the original story

in Test 3. In other words, the difference between the two sets of curves measures the retarding influence of mental effort. Eighth-grade children able to write at the rate of 22 words per minute when reproducing a story that they have read, or that has been read to them, were able to write but fifteen words per minute when they were forced to supply their own ideas, or when they are taking particular care to make legible writing. In this ability as in so many others, the period of rapid growth ends at the seventh grade.

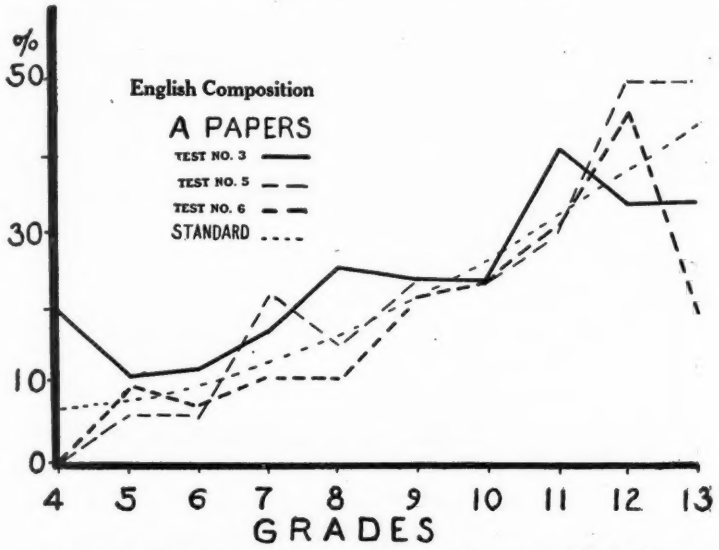

FIG. 7.—Development curves for the ability to write an "A" (Excellent) paper in the various tests.

In Fig. 7 are drawn the curves showing the percentage of A ("Excellent") papers in each grade for various tests. It is interesting to note that in nearly every grade the curve for the original story is higher than the curves for either of the two reproductions, as it should be by the doctrine of interest. The dotted line marked "standard" represents, for this school, the efficiency of present instruction. That is, the efficiency of training in English composition at the present time is such that at the eighth grade

but 13 per cent of the children are able to write A, or "Excellent," papers.

Fig. 8 shows the curves based upon the mistakes in punctuation, spelling, and syntax per hundred words written. Development of these abilities, like many others, is most rapid in the early grades but continuous through to the end of the high-school years.

More interesting, however, are the efficiency curves given in Fig. 9. These are based upon the percentage of papers in each

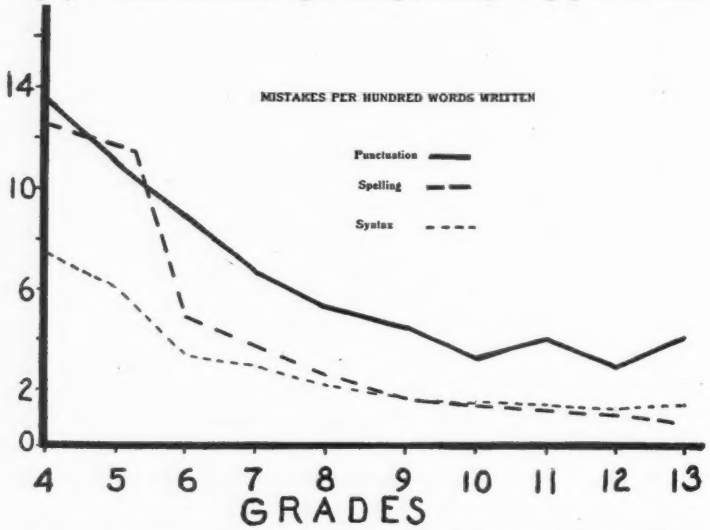

FIG. 8.—Development curves for punctuation, spelling, and syntax as determined by the number of mistakes in each per hundred words written.

grade which had between one and four mistakes in punctuation per hundred words, less than one mistake in spelling and in syntax per hundred words. Note the extremely rapid rise of the curve for punctuation and the more gradual development of the curves for spelling and syntax. It is interesting to note that while at the eighth grade but *one child in ten* is able to write 100 words without making a mistake in spelling, by the thirteenth grade the number has risen *to 55 per cent.* In this school the greater development of these abilities comes, not during the years when provision

is made for active study of spelling (grammar grades), but during high-school years *when the corrective work is incidental.* If these results are confirmed by the tests of other schools, it probably means that here, as in arithmetic, training on the specific abilities of spelling, punctuation, and grammar, is nearly valueless and does not transfer, that our first concern must be to give the children experience in thinking, expressing, and recording their thoughts and later perfect the mechanical elements through repeated use.

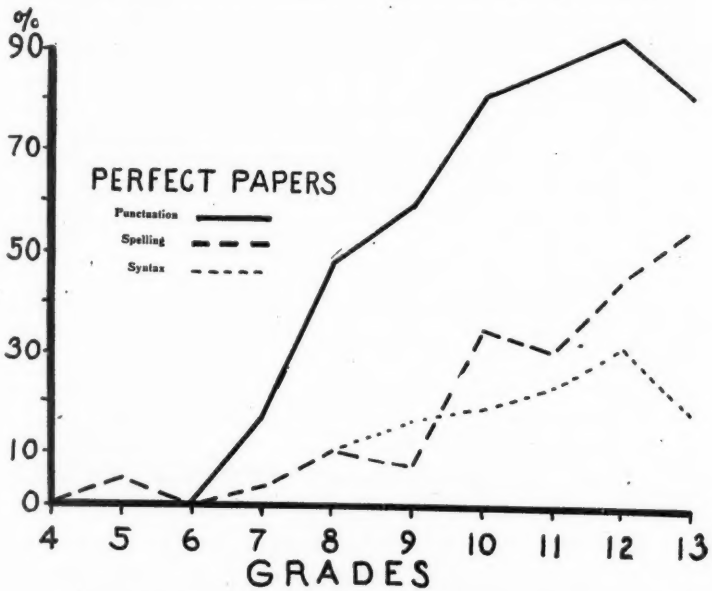

FIG. 9.—Efficiency curves for punctuation, spelling, and syntax. The curves indicate the percentage of each class membership which made but from 1 to 4 mistakes in punctuation, and less than 1 mistake in spelling and syntax, per hundred words written.

The curves in Fig. 10 give the median scores for rates of reading. It will be seen that the curve for normal reading rises to a high value and does not reach its maximum until the high-school years. The curve for careful reading, on the other hand, is practically constant from the sixth grade on. This probably means that the

rate and character of one's serious reading is fixed in the early school life. The result, however, needs to be confirmed by the tests of many school systems; it may be due to purely local conditions. If this type of curve should prove general, it should be possible eventually to define the ability to read in objective terms, i. e., a child would have standard ability in reading as soon as it could read 230 words per minute of a simple narrative printed in the size of type, length of line, openness of spacing represented by Test 5. To this must be added the qualifying clause, "and be

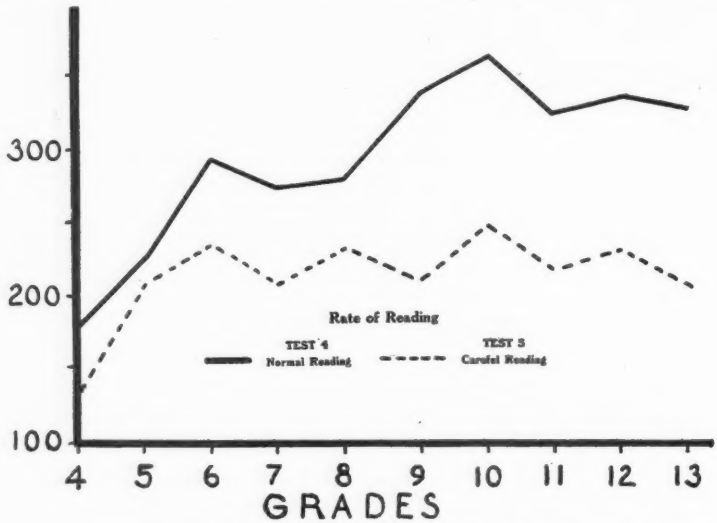

FIG. 10.—Development curves for normal and for careful reading, based upon the number of words read per minute.

able to reproduce about 50 per cent of the words and 75 per cent of the ideas after a single reading."

The results of the tests prove that the range of individual ability in reading, writing, etc., is as great as that revealed by the arithmetic tests. The performance of the more able child in any one class is usually from two to three times that of the less able child.

In the upper half of Fig. 11, for instance, the distribution of the 175 children in grades nine to thirteen are shown for Test 4 (solid

line) and Test 5 (dotted line). The scale along the base of the figure represents the number of words read per minute, while the scale at the left shows the frequency of the different scores. In each test a group of 50 children exceed the limit of the test. (The experimental work upon which the lengths of the various tests were based was done mainly with adults.) Had the tests been

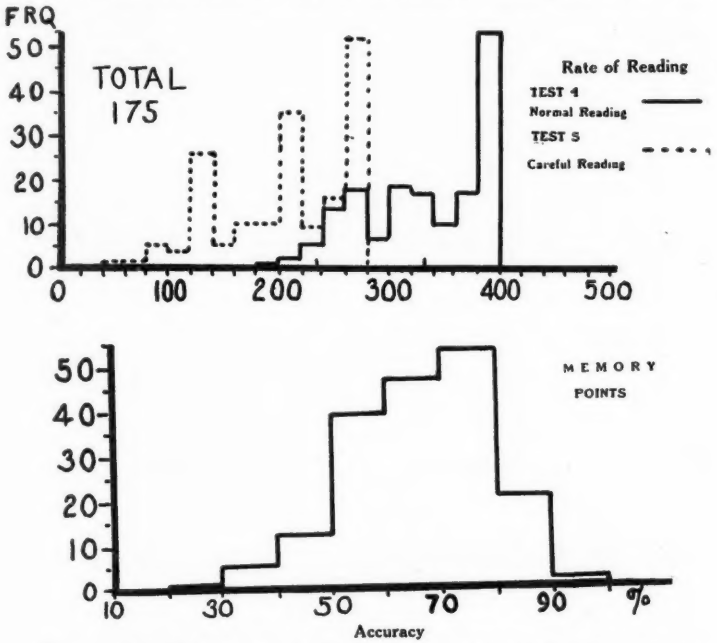

FIG. 11.—Distributions of individual scores of 175 high-school pupils as samples of the great range of individual variation in all tests. Abilities selected, the number of words read per minute in normal reading and in careful reading, and the number of ideas remembered of what was read. The more able children have scores from two to three times as large as those of the less able.

long enough, the ability of these pupils would undoubtedly have varied from 200 words per minute to 500 words per minute for normal reading, and from 60 words per minute to 400 words per minute for careful reading. When the vital nature of ability to read and understand is considered, this range of ability to read the simplest prose becomes very significant. Precisely similar results

are shown for memory in the lower half of the figure where the scale along the base line shows the accuracy with which the ideas read were remembered. It is evident from this one test alone that the character of the school product in reading is precisely similar to that in arithmetic, and the writer expects to find that the same general causes operate to prevent success, that the same factors determine efficiency, and that the same changes in methods of teaching will prove effective.

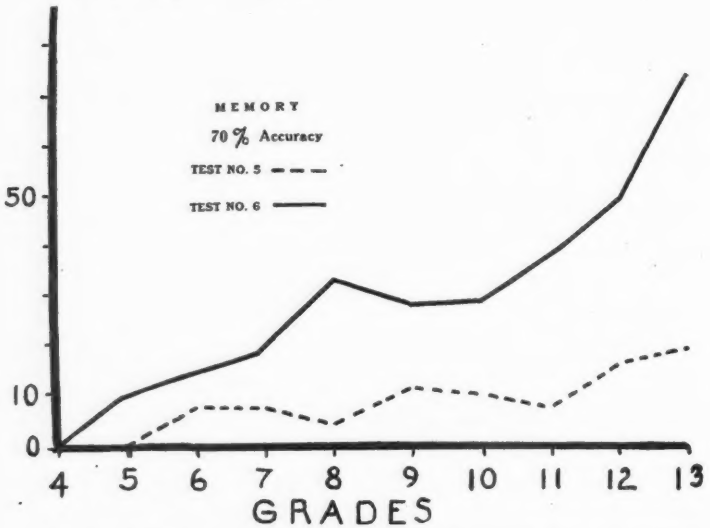

FIG. 12.—Curves showing the percentage of each class membership remembering 70 per cent or more of what was read (Test 5, visual stimulation) and of what was heard (Test 6, auditory stimulation). Note the rapid rise of the second curve, particularly in high-school years, and the very slight increase in the first curve.

The results shown by the curve in Fig. 12 were unexpected. The solid line is based upon the percentage of each class who remember 70 per cent or more of what was read to them (auditory stimulation), while the dotted line is a similar curve for the material the children read themselves (visual stimulation). It is evident from the figure that the children are steadily growing in their ability to remember the spoken word, while their ability to retain

what they themselves read is much less and shows little increase during the period of school life. In this particular school, at least, the growth in the power of the visual stimulus is much less than has been supposed.

In Fig. 13 is given a graphic representation of the use of the products of such standard tests in dealing with individual children. On the basis of these tests and the requirements of the school it is possible to say that an eighth-grade child of standard ability should

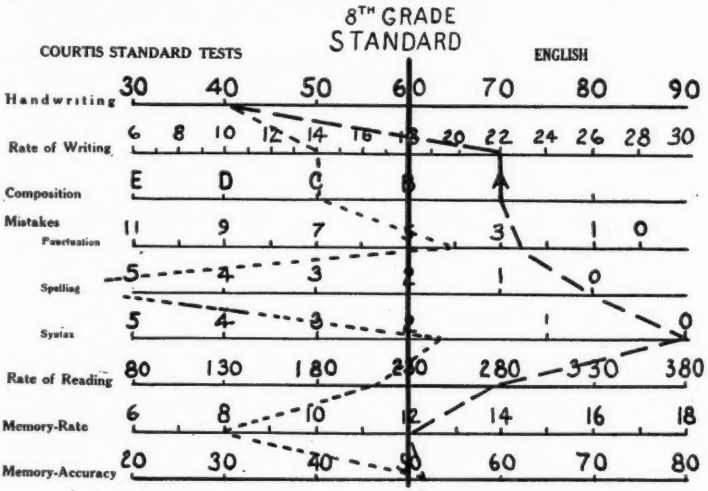

FIG. 13.—Comparative graph of standard and individual scores in the various tests. A suggestion of the possible use of scores in such tests for diagnosis of individual defects.

be able to write an original story at the rate of 18 words per minute and that legibility of the writing should be 60 on the Ayres scale, and the quality of the story "Good"; that in the story there should not be more than five mistakes in punctuation per hundred words, two in spelling, and two in syntax; that in careful reading of the given material under standard conditions, the rate should be 230 words per minute, and that in the reproduction of the material read, 12 of the original words should be used per minute and that these words should constitute 50 per cent of the words used in

the reproduction. The graph shows the actual scores made by two members of the same class. One individual—represented by the heavy broken line—wrote 22 words per minute, but the quality of her handwriting was only 40. Her story, however, was excellent. She made but 2.7 mistakes per hundred words in punctuation, none in spelling and syntax. She was able to read the test material at a high rate of speed and could reproduce what she had read at the standard rate and with better than standard accuracy. The other individual made the same scores in handwriting, although her rate was but 14 words per minute in the original story and the quality of the story itself but "Fair." Her control of punctuation and syntax was above standard but she was a poor speller. Her rate of reading was nearly normal, but she was slow in reproducing what she had read, although what she actually did write was up to the standard in accuracy. It is evident from these curves that both individuals need additional training in handwriting; that the second one needs also special assistance in spelling and special practice in the control of the mechanism by which the ideas are expressed.

The work in arithmetic has proved that it is not possible radically to change the efficiency of present methods *until the actual work assigned to each pupil is based upon his measured needs.* It should be evident from the foregoing discussion that the products from these tests in English will furnish objective standards that will serve both as goals for the guidance of teachers and pupils, and as a means of detecting the peculiar weaknesses of individuals. The co-operation of all teachers and superintendents interested in the experimental evaluation of such aids to classroom work will be appreciated.

THE TEACHING OF HYGIENE BELOW THE HIGH SCHOOL

J. MACE ANDRESS
Instructor in Hygiene, State Normal School, Worcester, Mass.

III. METHODS OF TEACHING HYGIENE

a) Incidental.—As previously suggested, we need to judge the results of the teacher of hygiene largely by the habits which she has been able to inculcate. In one sense the schoolroom and the school grounds are to be considered as places for the practice of hygienic habits. Every opportunity that the teacher has to help the child to form the right kind of habit should be eagerly seized. It is quite absurd to think of different habits, all important to health, being taken up in certain grades in a mechanical fashion and then being allowed to drop. It is not sufficient to mention cleanliness in one grade, or to make a great crusade for cleanliness at this time, and then let it drop and begin on another habit in the next grade.

Instruction in, and practice of, habits necessary for health should take place as soon as the child enters school. In most cases this instruction should be incidental and individual. In some cases, as in the cleaning of the teeth, class instruction should be given, and toothbrush drills inaugurated. As soon as the habit is being practiced regularly, nothing further need be done except in individual instances. Sometimes the entire school may come from homes where they are taught to clean their teeth regularly. In such circumstances, the teacher would not find it necessary to give the matter any consideration. When lessons are given in the lower grades, they should be brief, simple, and in a conversational tone. The first four grades should center their forces on getting children to form essential habits, and eventually on making the pupils responsible for them. Reading and a more systematic treatment of the subject should come in the higher grades.

Among the many habits which the teacher can supervise to a certain extent in the school are: (1) cleanliness of body, and cleanliness in the schoolhouse and on the schoolgrounds, (2) cleaning the teeth, (3) ventilating the schoolroom, (4) assuming correct postures, (5) correct breathing, (6) cleaning shoes before entering the schoolroom, (7) correct use of the voice, (8) right use of the eyes, (9) care of hair and nails, (10) use of individual drinking-cups, pencils, and other materials, (11) dusting school furniture, (12) cleaning blackboards.

There are also some bad habits which should be discouraged, such as (1) putting things into the mouth, (2) expectorating on the floor, (3) biting nails, (4) thumb-sucking, (5) "swapping" gum, food, etc., (6) coughing in another's face, (7) kissing on the lips, (8) carrying soiled handkerchiefs, (9) picking the nose, and (10) licking the fingers in turning the pages of a book.

In the upper grades, say beyond the fourth, it is to be hoped that less and less effort will be necessary on the part of the teacher as the pupils assume more and more the responsibility. Incidental instruction, however, will always be necessary.

Even if pupils practice certain habits while at school it does not necessarily follow that they will practice them at home, and then there are many habits such as sleeping with the window open that cannot be practiced at school. The teacher may advise children, ask them to report, or possibly confer with the parent to get the child to act. The deep-seated prejudice and ignorance found in many homes interfere greatly with the teacher's success in this direction. Often she can do little but give advice and hope that it will function. Parent-teacher associations which bring teachers and parents together to talk over common problems should be encouraged.

The teacher in co-operation with a school physician and nurse may accomplish a good deal to make the parents feel a sense of responsibility. As the school physician is not in direct contact with the children and carries certain authority because he is a physician, both the children, and the parents in many cases, are more likely to respond. If they do not, if there is a school nurse, she may be sent directly to the home to advise the parents and to see personally that the children have proper care. To make the

work of the school physician and school nurse effective, however, the teacher's intelligent co-operation is necessary. She must be quick to see that there is something wrong and refer the case to the physician. The result in most cases is likely to further the interests of school work. Often it is backwardness in school which suggests that there is something wrong with the health of a child. When that is corrected the school work invariably improves. Whenever a child is backward without any apparent cause he should always be turned over to the physician.

The Massachusetts State Board of Education has issued a pamphlet which should be very helpful to teachers. The general symptoms which would justify sending a pupil to the school physician, according to this pamphlet, are as follows: (1) emaciation, (2) pallor, (3) puffiness of the face, (4) shortness of breath, (5) swellings in the neck, (6) general lassitude, and other evidences of sickness, (7) flushing of the face, (8) eruptions of any sort, (9) a cold in the head with running eyes, (10) irritating discharge from the nose, (11) evidences of sore throat, (12) coughs, (13) vomiting, and (14) frequent requests to go out.[1]

As an illustration of the practical way the teacher in co-operation with the medical inspector may further the health of pupils, I quote from the records of the Elizabeth Street School, Worcester, Massachusetts:

WINTER OF 1912–13

H., boy of thirteen years, anaemic, nervous, undersized with greatly enlarged glands, had grippe which left him with hard cough, and in a weakened condition. His school work was so poor the teacher reported the case to the medical inspector, thinking that it might be best to take the child out of school.

A tonic was recommended, milk and fresh eggs were obtained through the Anti-tuberculosis Society, and part-time attendance was permitted for the remainder of the year. At the request of the medical inspector, and after a conference with the mother, this boy was taken to the City Hospital. An examination showed tubercular infection in one lung, and other symptoms. By appealing to a charitable organization, an arrangement was made whereby he was sent to the country for the summer.

H. returned to school in better condition than he has ever been before, is doing good work in class, receiving the last term the best report he ever had.

[1] See *Suggestions to Teachers and School Physicians regarding Medical Inspection*, issued by Massachusetts Board of Education, Boston, 1907.

As a result of conferences with the mother, the boy is now able to sleep with his windows open and be out of doors a good deal. He is examined at intervals by the school physician, who reports that he is now in an excellent physical condition.

This is a kind of work in hygiene that counts.

Medical inspection if it is to further the health of the school children must do something besides "inspect." It must follow up cases to see that they are properly treated. The ordinary notice sent to the parent, unless it is followed up as in the case mentioned above, is generally useless. Dr. Storey has demonstrated the value of a "follow-up method" in the secondary and lower collegiate department of the College of the City of New York.[1] This plan of individual instruction in hygiene, Dr. Storey says, proved effective in 90 per cent of the cases. Although there are probably many more obstacles in connection with an elementary school, yet there is no reason why a similar method should not be employed with a great improvement over the present prevalent practice.

Another way of teaching hygiene incidentally, one which is seldom made use of, is to treat all simple emergencies that arise in the schoolroom. This should be done for the sake of the health of the children and to give them some valuable ideas on hygiene. Many children have no idea of antisepsis. If a cut or burn is treated in the school, such information may be given so that it may be remembered. There is no reason why children should not be taught how to bandage a finger or hand. When skill has been gained in doing this in a class exercise they will then be able with the teacher's supervision to put on a bandage in an actual case of emergency. A simple emergency outfit can be purchased for a slight expenditure. One of these outfits should be on hand in every school building, especially in a rural school building where the home and physician are often some distance away. An inexpensive emergency outfit which can be purchased at any good drug-store is indicated below:

EMERGENCY OUTFIT[2]

Bandages: 1-inch for fingers and toes, $0.30 a dozen; 1-inch for extremities, $0.40 a dozen.

[1] See *Pedagogical Seminary*, XIX, 522–25.

[2] For suggestions on emergencies I am greatly indebted to Hannah C. Simmons, M.D., Worcester, Massachusetts.

Absorbent cotton, $0.27 a pound.

Sterile gauze pads, for use as sponges or as wet dressings, 1 dozen in a package, $0.30.

Zinc oxide adhesive plaster, to draw edges of cuts together and hold dressings on, ½ inch × 10 yards, $0.40 a roll.

Flexible collodion, 1-ounce bottle with brush to apply, $0.18.

Creolin, Pearson's, 1 pound, $0.75. (One teaspoonful in one pint of water makes antiseptic solution.)

Tincture of iodine, 2 ounces with brush to apply, $0.10.

Aromatic spirits of ammonia, 4 ounces, about $0.25. (For faintness, 15 drops in a tablespoonful of water. Repeat in 5 minutes if necessary.)

Carron oil, 6 ounces, about $0.20. (Apply to burns.)

Witch-hazel, 6 ounces, about $0.20. (For sprains.)

Rubber hot-water bottle. A common-sized glass bottle is as good and far cheaper.

Safety pins, small and large.

Scissors.

May have in addition:

Essence of peppermint. (One-half teaspoonful in one-half cup hot water, for colic, or a pinch of red pepper in hot water.)

Soda bicarbonate tablets, gr. V. (For sour stomach and vomiting.)

Spirits camphor. (To rub on swellings where skin is unbroken.)

Peroxide. (One teaspoonful in one-half glass of water as a gargle.)

Blue bichloride of mercury tablets. (One in one pint of water makes an antiseptic wash.)

This complete outfit can be purchased at any good drug-store for about $4.00. If conditions make this expense impossible, every teacher may have a simple outfit to treat cuts, burns, and bruises for a small sum. It should be put into a substantial wooden box and kept under lock and key.

Two books of invaluable assistance to every teacher in dealing with emergencies are: *Emergencies* (Gulick "Hygiene Series"), Ginn & Co. Barton, *First Aid Text-Book* (published by First Aid Association of America, Boston).

Incidental instruction which may not be directly related to immediate action should also be touched upon in other lessons. Health is so related to all the experiences of life that it may be considered in this fashion without a thought of "dragging it in." Let us note a few examples. In history, children should be taught to perceive the progress that has been made in overcoming disease, new discoveries in medicine and hygiene, and the effect of these on society; in civics, activities pertaining to public health, such as the cleaning of the streets, the disposal of garbage, and the prevention

of the spread of disease, should be emphasized; in geography, the failure or success of man to conquer his environment through the neglect or practice of modern sanitation is important; in nature-study, many opportunities are offered to teach the structure and function of the human body by comparing man with the plant and animal world. Knowledge thus gained helps to make the child feel the importance of health.

b) *Systematic instruction.*—It is only fair to ask why, if habit is the real goal of instruction in hygiene, systematic instruction needs to be given. Personally I believe there is no place for it below the fourth or fifth grades, and not even in the higher ones unless it centers about the interests of the children. In the upper grades its purpose should be that of supporting the hygienic habits which the children are learning or have learned. It should also give them some sort of an appreciation of health as one of the assets of our civilization. This general purpose of appreciation must be characteristic of much that is taught in our public schools. For example, a large proportion of the children who study about the mining of coal or the manufacture of steel will never make their living in those industries, and coal would burn just as well without any knowledge of how it came into being. A knowledge of both coal and iron does help to broaden the social consciousness of the child. It enables him to see these industries in relation to the needs and achievements of the people. For a similar reason systematic instruction in hygiene should be given, only in this case hygiene is much more important as a social problem, and is something which the citizen can influence to a large extent by his voice and vote and action.

Fortunately at this time there is a number of good textbooks in hygiene available for children in the grades. Among such books the Gulick "Hygiene Series" (Ginn & Co.) seems to the writer to be most interesting to children. In this brief paper it is impossible to discuss the ways in which such books can best be used. Every teacher should have on hand some few books for ready reference. The busy teacher who wishes to get a general background of physiology and anatomy with its application to hygiene will find Coleman's *Hygienic Physiology* (Macmillan) excellent. A larger and heavier work along the same lines is Hough and Sedgwick's *The*

Human Mechanism (Ginn & Co.). Every teacher should have on her desk a good book on school hygiene. Dresslar's *School Hygiene* (Macmillan) is probably the best.

Besides such material which may be permanently available, the current newspapers and magazines contain abundant material which the teacher may inject into the lessons. Some of the magazines have excellent pictures in their regular reading-columns or in the advertising section which may be used effectively. In the upper grades the teacher may find it advantageous to have a bulletin board on which the children may put printed matter of interest.

IV. AN EFFECTIVE IDEAL OF HEALTH

The psychology of ideals is still a dark chapter in our modern psychology. Many teachers and parents are misled in the belief that mere word knowledge, even when coupled with considerable understanding, functions through ideals. A child may have a good deal of knowledge about the structure, function, and care of his teeth and still never use a toothbrush. Knowledge is useful in inculcating the right habits but it is insufficient. The idea of the care of the teeth must have back of it a desire to have clean teeth, otherwise the child's knowledge becomes mere formal intellectual propositions. Our effective ideals probably come through action, and through habits of action. It is questionable whether anybody ever gained the ideal of work after knowing the value of work. The effective ideal of work really comes through habits of industry. Likewise cleanliness is acquired through habits of being clean. The first step toward getting children to develop the ideals of health is to get them to form the right habits. Attractive knowledge of the right kind will of course tend to make the practice of the habit easier. The inspiration and example of the teacher, too, are always powerful incentives to habit formation. Out of these hygienic habits, ably supported by a knowledge of the value of hygienic living, there should grow an effective ideal of health for the pupil who is to be thrown on his own responsibility in facing the problems of life.

BOOK REVIEWS

Medical and Sanitary Inspection of Schools. By S. W. NEWMAYER, A.B., M.D. Division of Child Hygiene, Bureau of Health, Philadelphia. Philadelphia and New York: Lea & Febinger, 1913. Pp. vi+318.

Eighteen years of school medical inspection in America and almost forty years in foreign countries have made it unnecessary at the present date to raise the question as to why such public care should be exercised. The focus of attention seems to be a critical sifting and sorting of proposed methods, a determined effort to extend the scope of the work and to assist in disseminating the best available information.

Dr. Newmayer's book takes its place with several others of rather recent date in attempting "to give definite, rationalized plans to prevent epidemics of contagions in the schools, and to recognize and correct physical defects of school children." It is designed as a guide for physicians, nurses, and teachers, to meet not only the one-sided aim of better care of the physical aspects of child-life, but in addition "to develop a deeper appreciation of the relations of physical and mental development."

The table of contents indicates that besides the brief introductory chapter, the whole subject-matter of the book is presented under four main headings, viz., "Administration," "The School Buildings and Grounds," "Infections, Contagions, and Communicable Diseases," "Physical Defects." Much of the matter is fresh in point of view, clearly orthodox in information, and stated in straightforward, easily interpreted language. The chapter on infections and communicable diseases is especially well done for such a condensed presentation. Many valuable specimens of report-blanks are submitted, and the whole subject-matter is illustrated, though not too profusely, with seventy-one photo-prints and fourteen full-page plates. The construction and print of the book are excellent.

It must be remembered that the whole forecast of the book is outlined from the point of view of a director of school hygiene, and to get the real value and setting of the author's undertaking one must place it in its proper relation to the whole movement—the rise, development, and best future of medical inspection.

Medical inspection first originated under the motive of fear. Parents desired their children protected from actual or possible danger of communicable diseases. This motive soon gave place to the more enlightened and humanitarian one of parents and guardians demanding or approving the public policy of taking measures to remove physical defects that might prove serious handicaps to children's profiting to the fullest by such educational opportunities as they come in contact with. And finally, the still larger ideal emerges of uniting all examinations with prevention through its handmaiden, education, by proper methods in the community at large and through instruction in the schools. Departments of school hygiene that in some way effectively combine the work of community protection and correction of physical defects with instruction will more surely meet future programs than handbooks for the work of merely examining children.

Although, then, this limited field of endeavor, as represented by Dr. Newmayer, is in itself praiseworthy, nevertheless it is somewhat disappointing to find this promising text following in the wake of its numerous predecessors of late, in failing to indicate the larger possibilities of such an undertaking by outlining a progressive program of practical work and instruction, and thereby bringing inspection and supervision of the physical condition of children more into line with the real *raison d'être* of education in school life.

D. P. MACMILLAN

BOARD OF EDUCATION
CHICAGO

CURRENT EDUCATIONAL LITERATURE IN THE PERIODICALS[1]

IRENE WARREN
Librarian, School of Education, University of Chicago

Adler, Martha. Mental tests used as a basis for the classification of school children. J. of Educa. Psychol. 5:22–28. (Ja. '14.)

Allen, William H. Two New York health universities. R. of Rs. 49:317–20. (Mr. '14.)

Atherton, Lewis. Literary selections most frequently memorized in the elementary schools. El. School T. 14:208–20. (Ja. '14.)

Ballard, P. B. Prose preference of school children. J. of Educa. Psychol. 5:10–21. (Ja. '14.)

Barnes, Earl. Comparison of Froebelian and Montessori methods and principles. Train. School M. (N.J.) 10:145–48. (Fe. '14.)

Benson, A. C. The influence of the older universities on the curricula of secondary schools. School W. 16:45–48. (Fe. '14.)

Brown, Elmer Ellsworth. Educational interests at Washington. Science 39:239–46. (13 Fe. '14.)

Bunker, Frank F. The better articulation of the parts of the public school system. Educa. R. 47:249–68. (Mr. '14.)

Bush, Arthur Dermont. Binet-Simon tests of a thirty-nine months old child. Psychol. Clinic 7:250–57. (Fe. '14.)

Butler, Nicholas Murray. Academic freedom. Educa. R. 47:291–94. (Mr. '14.)

Campbell, Everett Eveleth. A study of retardation and class standing on the basis of home language used by pupils. El. School T. 14:264–82. (Fe. '14.)

Davison, John. A teacher-training experiment evolved by the school authorities of Lima, Ohio. El. School T. 14:237–39. (Ja. 14.)

Dewey, John. Rousseau, Pestalozzi, Froebel, and Montessori. Kind. M. 26:186. (Mr. '14.)

Dunn, Arthur Wallace. Military camps for college students. R. of Rs. 49:321–26. (Mr. '14.)

Eliot, Charles W. Present problems of education. Educa. R. 47:237–48. (Mr. '14.)

[1] *Abbreviations.*—Atlan., Atlantic Monthly; Educa. Bi-mo., Educational Bimonthly; Educa. R., Educational Review; El. School T., Elementary School Teacher; English J., English Journal; J. of Educa. Psychol., Journal of Educational Psychology; Kind. M., Kindergarten Magazine; Outl., Outlook; Pop. Sci. Mo., Popular Science Monthly; Psychol. Clinic, Psychological Clinic; Relig. Educa., Religious Education; R. of Rs., Review of Reviews; School W., School World; Sci. Am. Sup., Scientific American Supplement; Train. School M. (N.J.), Training School Magazine (New Jersey).

Harkness, Mary Leal. The education of the girl. Atlan. 113:324–30. (Mr. '14.)
Heck, William H. A third study of mental fatigue in relation to the daily school program. Psychol. Clinic 7:258–60. (Fe. '14.)
Henmon, V. A. C. Retardation, acceleration, and class standing. El. School T. 14:283–94. (Fe. '14.)
Hinkle, E. E. Experiments for efficiency in arithmetic, the Courtis tests. Educa. Bi-mo. 8:189–201. (Fe. '14.)
Keltie, J. Scott. Thirty years' progress in geographical education. School W. 16:53–55. (Fe. '14.)
Keyes, Rowena Keith. How we use our school library. English J. 3:86–93. (Fe. '14.)
Lyon, Darwin Oliver. The relation of length of material to the time taken for learning and the optimum distribution of time. J. of Educa. Psychol. 5:1–9. (Ja. '14.)
Mathews, John L. Dynamic education. Harper 128:616–25. (Mr. '14.)
Vocational and industrial training in Germany.
Otis, Alvah T. The appreciation and management of high-school debate. English J. 3:94–98. (Fe. '14.)
Peck, R. C. A home geography lesson for a city school. El. School T. 14:240–41. (Ja. '14.)
Roberts, William M. The development of part-time education for apprentices in Chicago. Educa. Bi-mo. 8:215–26. (Fe. '14.)
Sadler, M. E. Thoughts on present discontents in English education. School W. 16:42–44. (Fe. '14.)
(A) school in a prison. Outl. 106:288–89. (7 Fe. '14.)
Simpson, R. M. Addresses by citizens to school boys. El. School T. 14:221–36. (Ja. '14.)
Stevenson, O. J. The old and the new in literature teaching. English J. 3:69–77. (Fe. '14.)
Terman, Lewis M. The effects of school life upon the nutritive processes, health and the composition of the blood. Pop. Sci. Mo. 84:257–64. (Mr. '14.)
Todd, John B. Fresh air in schoolrooms. Sci. Am. Sup. 77:118–19. (21 Fe. '14.)
Tooke, Frances E. Relations among the staff in secondary schools. School W. 16:58–60. (Fe. '14.)
West, Andrew F. Greek at Princeton. Educa. R. 47:279–90. (Mr. '14.)
Williams, A. M. Philosophy and education. Educa. R. 47:269–78. (Mr. '14.)
Wilson, Woodrow. The object of the college. Relig. Educa. 9:1–3. (Fe. '14.)
Witmer, Lightner. The scope of education as a university department. Psychol. Clinic 7:237–49. (Fe. '14.)
Wolfe, A. B. Tests of college efficiency. Educa. R. 47:217–36. (Mr. '14.)
Woodward, Robert S. The Carnegie institution of Washington. Science 39:225–39. (13 Fe. '14.)